August 26, 2016

Ms. Barbara H. Kelly, Esq.
Wilson Elser Moskowitz Edelman & Dicker, LLP
200 Campus Drive
Florham Park, New Jersey 07932

RE: Covanta Essex Company - Essex County Resource Recovery Facility
183 Raymond Boulevard and 66 Blanchard Street, Newark, New Jersey

Dear Ms. Kelly:

As you requested, I have reviewed the "nexus" documents obtained from the Administrative Record for the Lower Passaic River Study Area as they pertain to the Essex County Resource Recovery Facility, owned and operated by Covanta Essex Company ("Covanta"). The nexus documents were analyzed in relation to the U.S. Environmental Protection Agency's (USEPA) March 2016 Record of Decision to form an opinion as to whether Covanta has contributed actionable contamination to the Lower Passaic River.

In summary, the nexus documents indicate that Covanta did not contribute actionable contamination to the Passaic River. The intent of this report is to present the facts and technical conclusions from my review for Covanta's use in demonstrating to USEPA that Covanta is entitled to a *de minimis* settlement with respect to the Lower Passaic River.

The conclusions and opinions expressed herein are accurate to a reasonable degree of scientific certainty, and are based in part on cited source documents.

I appreciate the opportunity to assist Covanta and Wilson Elser and am available to discuss this report at your convenience.

Sincerely

Tomlinson Fort, M.S., PG
Principal

Attachment

TECHNICAL EVALUATION

Covanta Essex Company

Essex County Resource Recovery Facility

183 Raymond Boulevard and 66 Blanchard Street

Newark, New Jersey

August 26, 2016

Prepared for:

Ms. Barbara H. Kelly, Esq.
Wilson Elser Moskowitz Edelman & Dicker, LLP
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Covanta Essex Company – Essex County Resource Recovery Facility
183 Raymond Boulevard and 66 Blanchard Street, Newark, New Jersey

Executive Summary

The Essex County Resource Recovery Facility (ECRRF or Facility) is owned and operated by Covanta Essex Company (Covanta) (formerly known as American Ref-Fuel Company of Essex County (ARF)) under a long-term agreement with The Port Authority of New York and New Jersey (Port Authority). The ECRRF is located on real property owned by and leased from the Port Authority (Site). The ECRRF serves the municipal solid waste (MSW) disposal needs of 22 municipalities in Essex County, New Jersey and portions of New York City. The Facility processes 2,800 tons per day of MSW[i] and generates approximately 500 million kilowatts of electricity each year.

"Nexus" documents included in the United States Environmental Protection Agency's (USEPA) Administrative Record for the Lower Passaic River Study Area purport to link ARF / Covanta to actionable contamination in the Lower Passaic River solely on the basis of historic exceedances of the Facility's New Jersey Pollutant Discharge Elimination System (NJPDES) stormwater permit, occurring from August 1988 (when the ECRRF was under construction) through August 1993 (the early years of Facility operation).[ii] The discharges in question were stormwater only; the Facility never discharged any industrial process waters to the Passaic River at any time. Stormwater was discharged intermittently in the time period from the beginning of construction in 1988 until 1997. Beginning in 1997, the Facility adopted a zero discharge configuration, recycling essentially all stormwater in its cooling and quench water makeup program (except during unusual storm events).[iii] As a result negligible stormwater has been discharged from the Site's two permitted outfalls since 1997.

Stormwater discharge exceedances of the Site's NJPDES permit do not indicate that Facility operations had any effect on contaminant of concern (COC) concentrations in Passaic River sediments. The vast majority of the stormwater discharge exceedances at issue are completely irrelevant to Record Of Decision (ROD) COCs. The most frequent exceedances (Total Coliform, Total Suspended Solids (TSS), Chemical Oxygen Demand (COD), pH and some organic permit criteria) were similar pre-operationally (during ECRRF construction) and post commencement of Facility operations,[iv] indicating that neither Facility construction nor operation were the cause of those exceedances. Of the COCs listed in the ROD, only lead exceedances are documented in the Site stormwater discharge, and only on six occasions, at low concentrations.[v]

As shown in the nexus documents, prior to ARF / Covanta's commencement of Facility construction in February 1988, the Site was known to be impacted with petroleum hydrocarbons, solvents, lead, and other contaminants, which historically flowed or were deposited on the property by adjacent chemical, petroleum, lead processing, vehicle salvage, and other industries.[vi] The Site was used historically as an illegal dumping ground for all manner of debris and waste. **Exhibit 4** contains a May 1988 letter from US Testing (NJDEP Consultant) apprising the agency about contamination flowing in the Site's west ditch from off site and discusses concerns over NJPDES outfall sample integrity; Site NJPDES outfalls are located in this ditch. Significant remediation of the Site was done by the Newark Regional Housing Authority (NRHA) (prior to its conveyance of the real property to the Port Authority in December 1987), and by the Port Authority and ARF. In September 1989, the New Jersey Department of Environmental

Protection (NJDEP) informed ARF that "no further investigation or remediation [was] required" and that the Memorandum of Understanding (MOU) between NJDEP and the Port Authority governing the cleanup of the Site was to be terminated.

In summary, the Administrative Record reflects that historic organic and inorganic stormwater exceedances attributed to the ECRRF were caused by contributions from off-site sources, on-site contamination that pre-dated construction of the Facility, seepage of contaminated groundwater to the NJPDES sample outfalls, and/or back flow of contaminated Passaic River water into the NJPDES outfalls during high tide.[vii] For the reasons listed above, and discussed further below, ARF / Covanta has not contributed actionable contamination to the Passaic River. In fact, as a result of documented remediation efforts by the NHRA, the Port Authority and ARF / Covanta, the Site is cleaner today than it was prior to ECRRF construction, and the Facility's zero-discharge configuration has virtually eliminated stormwater discharges to the Passaic River.

1.0 History of the Site

The Site and surrounding properties are shown on **Exhibit 1**. A timeline of regional industrial development in the vicinity is shown on **Exhibit 2**, and a timeline of Site development is shown on **Exhibit 3**. Although most of the properties surrounding the Site had been developed since at least the 1930s, the subject property was lower in elevation and contained drainage ditches which subjected it to contamination flowing in drainage from off site and periodic flooding from the adjacent Passaic River (see May 1988 US Testing Letter in **Exhibit 4**). The Passaic River would back up into the ditches at high tide, thereby subjecting the low-lying Site to frequent flooding during storms. The flood-prone and poorly-drained nature of the Site is likely what deferred its development in relation to the earlier-developed surrounding parcels.

The Site and its ditches received runoff from surrounding industry for decades. Pre-filling, the property was tidal marshland. The Site received all manner of fill over the years (metal, glass, paper, plastic, cinders, concrete, gravel, stone, brick, concrete). The Site was used historically as an illegal dumping ground for all manner of debris and waste.[viii] In addition, the Site is located roughly beneath the New Jersey Turnpike, near Routes 1 and 9, adjacent to the Conrail right-of-way, and near to Port Newark. The Site is therefore located such that it may have received impact from significant transportation activity historically, including fumes and fallout from leaded gasoline, herbicide / pesticide applications, and chemical / fuel spills (for example).

Of note also, the closed Ottilio Landfill (**Exhibit 1**) exists immediately south of the Site.[ix] In 1974, the USEPA determined that groundwater beneath the Ottilio property was contaminated with lead at high concentrations up to 1,240 mg/l (parts per million). Groundwater is hydrogeologically expected to flow from the Ottilio property toward the north-northeast, beneath the Site for discharge to the Passaic River. The Ottilio Landfill is a plausible source for contaminants, including lead, on the Site.

In 1983, the Port Authority selected Browning Ferris Industries, Inc. (BFI) to design, construct and operate the ECRRF. In 1984, BFI Energy Systems of Essex County, Inc. and Air Products Ref-Fuel of Essex County, Inc. created ARF (a New Jersey General Partnership), which subsequently assumed responsibility for constructing, and ultimately operating, the ECRRF. The Port Authority acquired the Site from the

NRHA in December 1987, and leased the site to ARF effective January 31, 1988. ARF commenced construction of the Facility on or about February 1, 1988, and the first burn of MSW occurred on or about November 3, 1990. On June 24, 2005, Covanta Holding Corporation acquired ARF; the name of the acquired company was changed to Covanta Essex Company on July 25, 2005.

2.0 Site Remediation

The Port Authority investigation of 1983[x] concluded that all Site groundwater samples collected were impacted above NJDEP standards with various substances, and contained priority toxic pollutants such that anticipated construction dewatering may produce contaminated liquids, some of which might potentially come from the adjacent Ottilio Landfill. Investigations identified, among other things, abandoned vehicles, hundreds of 55-gallon drums, and two tanker trailers of waste on the Property. In the above 1983 investigation, groundwater sampling at the Site detected numerous priority toxic organic pollutants as well as arsenic, iron, manganese, phenol, chromium, ammonia, and total coliform above then-applicable groundwater quality standards. Pesticides were also detected in Property soils in 1983, although below remedial action criteria then in effect.[xi] Covanta is aware of numerous other environmental site assessments done by others over time to assess the extent and magnitude of environmental impacts on the Site. Covanta believes results of these studies are in the public record and were done by various consultants on behalf of the owners of the Site and NJDEP. Covanta is aware that these other studies also found contamination that required remediation.

The nexus documents show that substantial remediation was done on the Site before construction of the facility, including removal of hundreds of junk cars, illegally-dumped industrial debris and containers of waste, and excavation of contaminated soil to ready the Site for construction of the Facility. This work was required pursuant to an Administrative Consent Order (ACO) issued by NJDEP to the NRHA and later under a MOU with the Port Authority. During construction of the facility, ARF removed additional impacted soil and backfilled with clean soil to the satisfaction of NJDEP. During construction dewatering on the Site, ARF treated produced groundwater with activated carbon prior to discharge under its NJPDES permit. As evidenced by a September 29, 1989 letter from NJDEP to ARF, all Site remediation was completed to the satisfaction of NJDEP, subject to planned capping of three remaining areas with clean soil, prior to commencement of Facility operations in November 1990.

3.0 Contaminants of Concern and Risk Drivers in the Record of Decision (ROD)

The ROD links the necessity for remediation of Lower Passaic River Sediments to those COCs that are determined to pose an unacceptable risk to human health or the environment (Risk Drivers). Not all COCs are Risk Drivers; in particular, lead does not drive risk or remediation, as detailed in the ROD.

COCs evaluated in the ROD are:

1. Dioxins & Furans
2. Polychlorinated biphenyls (PCBs)
3. Mercury (as methyl mercury)
4. DDT and its metabolites (Total DDT)

5. Dieldrin
6. Polynuclear aromatic hydrocarbons (PAH)
7. Copper
8. Lead

Of the above COCs, the ROD risk assessment identified a subset of principal Risk Driver contaminants. These Risk Drivers are the ones that cause the most risk, and therefore are the same contaminants that compel remediation and establish remedial end points.

Risk Drivers used for establishing remedial goals in the ROD (See ROD Table 25) are:

1. 2,3,7,8-TCDD
2. Total DDT
3. Total PCBs
4. Mercury

The calculated Exposure Point Concentration (EPC) for lead in Passaic River sediment in the RI/FFS was 240 mg/kg. For comparison, the Ecological Screening Level (EcoSSL) for lead in sediment, promulgated by USEPA, is 35.8 mg/kg. However, despite the exceedance of the EcoSSL with respect to lead in sediment, the human and ecological risk assessments performed in connection with the ROD indicate that lead is not a driver or major contributor to risk. Therefore, although lead is a listed COC in the ROD, USEPA has determined in the ROD that lead is not driving any response actions.

Table 25 of the ROD lists mercury, Total PCBs, Total DDT, and 2,3,7,8-TCDD as the hazardous substances upon which the remediation goals are based. Lead is not listed, nor are any of the other constituents detected in the stormwater discharges from the Site.

The ecological risk assessments based on site-specific parameters indicate that the primary contributors of risk are consistently dioxins and dioxin-like compounds, as well as PCBs, not lead. In addition, lead was not considered a contaminant of potential concern with respect to the human health risk assessment. Given that the ROD does not identify lead as either a driver or primary contributor to human health or ecological risk, it is unlikely that the degree of remediation currently being proposed for the Lower Passaic River would be proposed if the primary drivers of risk (TCDD TEQ, Total DDT and PCBs) were not present.

4.0 Discussion of Site Stormwater NJPDES Permit Exceedances Included in Nexus File

Parameters noted in nexus documents as Discharge Monitoring Report (DMR) exceedances of the Site's NJPDES permit are listed below.

a. Total Coliform Bacteria (fecal coliform) – 103 exceedances
b. Total Suspended Solids (TSS) (particulates) – 46 exceedances
c. Chemical Oxygen Demand (COD) – 38 exceedances
d. Total petroleum hydrocarbons (TPH) – 18 exceedances
e. Zinc – 12 exceedances
f. pH (standard units of acidity) – 11 exceedances
g. Lead – 6 exceedances

h. 1,1,1-TCA – June 1990 (chlorinated solvent) – 1 exceedance
i. Toluene (VOC) – one exceedance
j. Methylene Chloride – At least 2 of 3 instances are likely not true detections – One exceedance due to elevated detection limit, and in another the constituent was detected in laboratory method blank. This is a common lab contaminant.
k. Benzene (VOC) – one exceedance – likely not a true detection – exceedance due to elevated detection limit
l. Cyanide – one discordant detection – retested and proved anomalous

Table 2 lists all the above exceedances individually for each NJPDES outfall, along with approximate exceedance dates and reported concentrations and measured values.

In November 1993, Eckenfelder, Inc. narrowed the exceedances list to those that were most problematic and repetitive; this was done in Eckenfelder's Runoff Characterization and Treatability Study for the Site.[xii] The study was conducted pursuant to the terms of a December 1992 ACO between NJDEP and ARF. The purpose of the study was to evaluate NJPDES discharge exceedances experienced by the Site up to that time and to recommend alternatives for stopping the exceedances. The study concluded that exceedances could be prevented by capturing all "first flush" stormwater for re-use at the Facility. Later conversion of the facility to zero discharge in 1997 accomplished the recommendations outlined in the 1993 Eckenfelder, Inc. report. Of the exceedance types listed above, Eckenfelder, Inc. narrowed the list by removing one-time occurrences and discordant detections. Eckenfelder identified 7 exceedances for further focus. The following recurring exceedances were addressed in the Eckenfelder, Inc. report:

- Total Oxygen Demand
- Fecal Coliform
- Total Suspended Solids
- Total Zinc
- Total Lead
- Total Petroleum Hydrocarbons
- pH

Exceedances were caused by pre-existing or off-site contributions. Repetition of exceedances both prior to / during Facility construction and after operations commenced indicates that neither construction nor operations are responsible for these exceedances. Rather, these exceedances were caused by pre-existing or external factors unrelated to site construction or operation. All organic and metal constituents noted in NJPDES exceedances were known to pre-exist Facility construction in Site groundwater, soils, and in the adjacent Ottilio Landfill.[xiii] Together, these facts indicate that the physical, biological, organic and inorganic exceedances were caused by contributions from off site, Site contamination that pre-dated construction of the Facility, seepage of contaminated groundwater to the NJPDES sample outfalls, and/or back flow of contaminated Passaic River water into the NJPDES outfalls during high tide[xiv].

Of the stormwater NJPDES exceedance parameters listed on **Table 2**, only lead is a COC in the March 2016 ROD.[xv] Because lead is the only NJPDES exceedance parameter that appears as a ROD COC, it is

evaluated here separately. **Table 3** lists all the stormwater NJPDES exceedances for lead noted in the nexus documents received by Covanta.

5.0 Description of the Site's Stormwater NJPDES Permit, Outfalls, Limits, and Drainage Area

The Site has a single NJPDES Permit (#0055247) that covers the discharge of only stormwater. The Facility has never discharged any industrial process water to the Passaic River at any time. The Facility discharges only sanitary sewage to the city sewer system; other water is re-used in the water recycling program. In 1997, ARF / Covanta modified the ECRRF's operation to make it a "zero discharge" facility, except during storm events. In April 1997, ARF completed construction of its stormwater management system which included construction of physical stormwater outfalls in the pre-existing ditches. The stormwater management system diverts stormwater from operational areas of the Facility to storage (including an on-site pond and tankage) for re-use in the Facility, except during atypical storm events when storm flow temporarily exceeds storage capacity. Only stormwater associated with non-operational areas typically flows to ditches on the Site. As a result of the stormwater management system, discharges of stormwater to ditches have been both infrequent and short in duration since 1997.

The NJPDES Permit was initially issued on February 1, 1986 as applicable to the construction phase of the project.[xvi] Monthly sampling under NJPDES #0055247 began in June of 1988.[xvii] As the original permit was due to expire on January 3, 1991, a permit renewal application was submitted on May 22, 1990. [xviii] The historic permit originally allowed for the discharge of stormwater during and after construction of the Facility and initially specified allowable flow rates, parameter ranges, and constituent concentrations for compliance with permit conditions. The historic permit also prescribed two sampling outfalls (DNS001 and DNS002), a discharge sampling schedule, laboratory analytes, and a reporting program utilizing discharge monitoring report (DMR) forms. The permit has been renewed several times, and there have been some changes to the number and frequency of samples and analytes required. **Table 1** shows the historic and modern criteria associated with the permit.

When first issued in 1986, NJPDES Permit #0055247 required some chemicals to be analyzed in Site stormwater solely because the chemicals were known to pre-exist construction of the Facility, either in contaminated Site soils/groundwater, or at the adjacent and up-gradient Ottilio Landfill.[xix] Neither the construction on the Site nor operation of the Facility used large quantities of these chemicals specified for analysis in the Site NJPDES stormwater discharge permit. The following is from an ARF letter to NJDEP dated April 8, 1991: *"No process or production exists on-site that would generate this type of material."* [xx] As noted in the above letter from ARF, but for pre-existing and off-site chemical sources that are unrelated to the Facility, analysis for the following chemicals in Site stormwater discharge would not have been required:

- Cyanide
- Volatiles
- Benzene
- Ethylbenzene
- Toluene
- methyl chloroform, and

- methylene chloride.

Over time, the Site has had two outfalls specified in NJPDES Permit #0055247. Approximate locations of the Outfalls are shown on **Exhibit 1**. Terms of the historic NJPDES permit required both outfalls to be routinely sampled. However, following Site conversion to zero discharge in 1997, current NJPDES permit terms do not require regular sampling of either outfall.

- Outfall DSN001 was used during Facility construction, and still exists, though its configuration changed over time, and it is presently clamped shut under the Site's zero discharge configuration. When discharge occurred historically, DSN001 received flow from the on-site settling pond (including treated construction dewatering effluent (groundwater) during the construction) and runoff from the scale house area of the Facility. Sample integrity of DSN001 has been compromised historically due to tidal backup of contaminated Passaic River water to the outfall, as well as contamination coming down the drainage ditch from off site, and contaminated groundwater from construction dewatering and natural seepage. When it was active, flowrate of this outfall was always intermittent based on rainfall. Maximum flowrate of DSN001, after two weeks of heavy rain and maximum construction dewatering, was estimated by a consultant to NJDEP at only 10 – 15 gallons per minute (gpm), for only 4-5 hours per day, and only on work days when construction dewatering was active.[xxi] Available flow data indicate that during historic Facility operations, when the outfall was flowing, DNS001 flow was measured in a range of 2.8 – 40 gpm.
- Outfall DSN002 in the west ditch was not initially active from issuance of the original NJPDES permit on February 1986 until construction dewatering ceased on March 31, 1989;[xxii] this was due to the lack of any defined sampling point and concerns over sample integrity because of upstream sources draining to the west ditch.[xxiii] Outfall DSN002 is presently clamped shut under the Site's zero discharge configuration. NJDEP's consultant determined that the west ditch received runoff from off-site, including Norpak, Fairmount Chemical, Blanchard Street and the adjacent railroad.[xxiv] In August 1988, NJDEP wrote a letter to the Facility stating:

  > *"It is our determination that this [west side] ditch is a "common ditch" which receives runoff from a number of facilities in the surrounding area... this "common ditch" is not the sole responsibility of American Ref-Fuel but is the responsibility of all the facilities whose runoff drains into the ditch."*

  After construction on the Facility and DSN002 were complete, sampling of DSN002 did commence in the west ditch in October 1990.[xxv] Historically, when DSN002 flowed at all, it received Site runoff from the administration building, employee parking, and air-cooled condenser areas as well as from off-site, including Norpak, Fairmount Chemical, Blanchard Street and the adjacent railroad. Concerns over sample integrity persisted. Flow at DSN002 was historically intermittent and entirely dependent on rainfall. Available flow data indicate that during historic Facility operations, when the outfall was flowing, DNS002 flow was measured in a range of 2.8 – 25 gpm.

During construction of the Facility from 1988-1990, stormwater discharge included construction site runoff and dewatering flow that were collected in a settling pond prior to being discharged to DSN001.

This flow was intermittent and related to dewatering during the work week and periodic precipitation events.

During Facility operations from November 1990 until 1997, the applicable NJPDES outfalls were generally sampled on a regular basis during periods of discharge. **Table 1** (Historic) shows the permit criteria and limits during this stormwater discharge period.

Beginning in 1997, the Site's stormwater management system was re-configured into a closed-loop, zero discharge format. Since this change, essentially all Site stormwater has been recycled into the Facility's cooling and quench water makeup, with rare discharges occurring only during unusual storm events. Under the zero discharge program, the NJPDES permit and outfalls still exist, although pipes are physically clamped shut. If pond discharge events occur during storms at DSN001 or other overflows occur at DSN002, the permittee is required to report the discharge and analyze effluent, though no discharge concentration parameters or limits are specified, except for oil and grease (see **Table 1** (Current)). Since 1997, other than for isolated storm discharge events, there have been no discharges from the Site under this permit.

6.0 Stormwater Exceedances are Not the Result of ARF/Covanta/ECRRF Operations

Historically, the Site's NJPDES outfalls were known to be affected by infiltration of contaminated groundwater and backing up of contaminated Passaic River water to the outfalls during high tide.[xxvi] This created a severe problem with the integrity of NJPDES samples for the Site over its entire history of stormwater NJPDES discharges. The problem proved difficult to solve, after substantial effort, due principally to the low elevation of the site and frequent inundation of the outfalls by the tidal (and contaminated) Passaic River. Tidal gate weirs were installed in January 1992 to limit Passaic River backflow but proved ineffective.[xxvii] The situation is further complicated in that the outfalls are located in drainage ditches that receive contaminated groundwater seepage and industrial runoff from off site, as discussed above. From the earliest discharges prior to construction of the Facility, both Site outfalls experienced chronic exceedances with fecal coliform, chemical oxygen demand (COD) and total suspended solids (TSS), and DSN001 also experienced pre-construction exceedances of the chlorinated solvent 1,1,1-TCA and pH.[xxviii]

Exhibit 4 contains letters from ARF and US Testing (contractor to NJDEP), explaining the Site's outfall sample integrity problem in detail (Bates references as noted on the documents).

The above factors are known to cause Site NJPDES exceedances, because exceedances began almost immediately upon initiation of NJPDES sampling, before the Facility was even constructed. For example, a letter from NJDEP dated June 11, 1990 (pre-Facility operation) states the following:

> "*The facility exceeded its NJDPES permit effluent limitations for pH, chemical oxygen demand (COD), Total Suspended Solids (TSS), and Fecal Coliform, Trichloroethylene* (1,1,1-TCA), *Methylene Chloride, and Benzene at DSN001…*"[xxix]

At the time of the above letter, the Facility had not yet begun operation nor received any MSW. Note that the high concentration of 1,1,1-TCA likely created false-positive results for methylene chloride and

benzene in this instance due to required sample dilution and raised detection limits; benzene and methylene chloride therefore, were probably not true detections.[xxx]

7.0 Conclusion

A technical analysis was conducted of nexus documents in the USEPA Administrative Record for the Lower Passaic River Study Area to form an opinion of whether or not ARF / Covanta contributed to actionable contamination in the Passaic River as compared to ROD COCs. No evidence of an ARF / Covanta contribution to actionable contamination was found. The sole alleged nexus to ARF / Covanta are historic stormwater NJPDES permit exceedances from 1988 to 1993, the majority of which have nothing to do with ROD COCs. The only NJPDES permit exceedance constituent that even appears on the ROD COC list is lead. USEPA determined in the ROD that lead does not drive risk or remediation. Instead, risk and the need to remediate are driven by dioxin, PCBs, Total DDT, and mercury. If the ARF / Covanta Facility had never existed at all, concentrations of contaminants driving remediation in the Passaic River would be exactly the same. Moreover, as a result of documented remediation efforts by the NHRA, Port Authority and ARF / Covanta, the Site is cleaner today than it was prior to ECRRF construction, and the Facility's zero-discharge configuration has virtually eliminated stormwater discharges to the Passaic River.

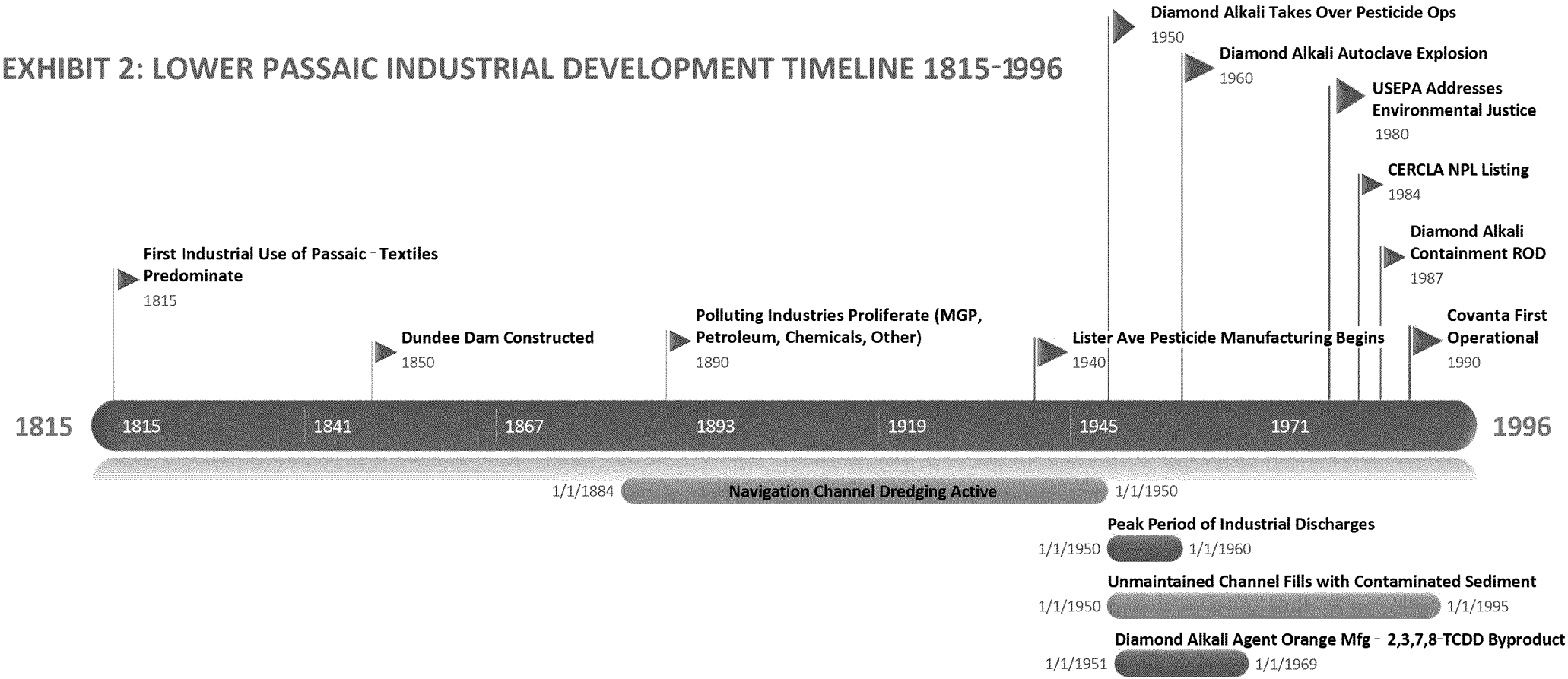
8.0 End Note References – Cited Source Documents

[i] Solid Waste Facility Permit RRF110001, issued by the NJDEP on February 23, 2016
[ii] American Ref-Fuel / Covanta Nexus Documents (ARF0000001 – ARF0000319)
[iii] Essex County Resource Recovery Facility NJPDES Permit #0055247, issued by the NJDEP on December 6, 2010 (renewal pending)
[iv] See Table 2
[v] See Table 2
[vi] ARF0000554-ARF0000596
[vii] ARF0000176
[viii] ARF0000568-ARF0000569
[ix] ARF0000554-ARF0000596
[x] ARF0000554-ARF0000596
[xi] ARF0000554-ARF0000596
[xii] ARF0000306
[xiii] ARF0000554-ARF0000596
[xiv] ARF0000145, see also Exhibit 4 of this report
[xv] US EPA Record of Decision (ROD); Lower 8.3 Miles of the Lower Passaic River, March 2016
[xvi] ARF0000012
[xvii] ARF0000061
[xviii] ARF0000029
[xix] ARF0000063
[xx] ARF0000062
[xxi] ARF0000002
[xxii] ARF0000051
[xxiii] ARF0000013
[xxiv] ARF0000003
[xxv] ARF0000061
[xxvi] ARF0000145
[xxvii] ARF0000112, ARF0000145, ARF0000306
[xxviii] Table 2
[xxix] ARF0000041
[xxx] Table 2

EXHIBITS

EXHIBIT 1 – SITE AND SURROUNDING FEATURES

EXHIBIT 2: LOWER PASSAIC INDUSTRIAL DEVELOPMENT TIMELINE 1815-1996



APEX

EXHIBIT 3: COVANTA SITE TIMELINE 1965-2006

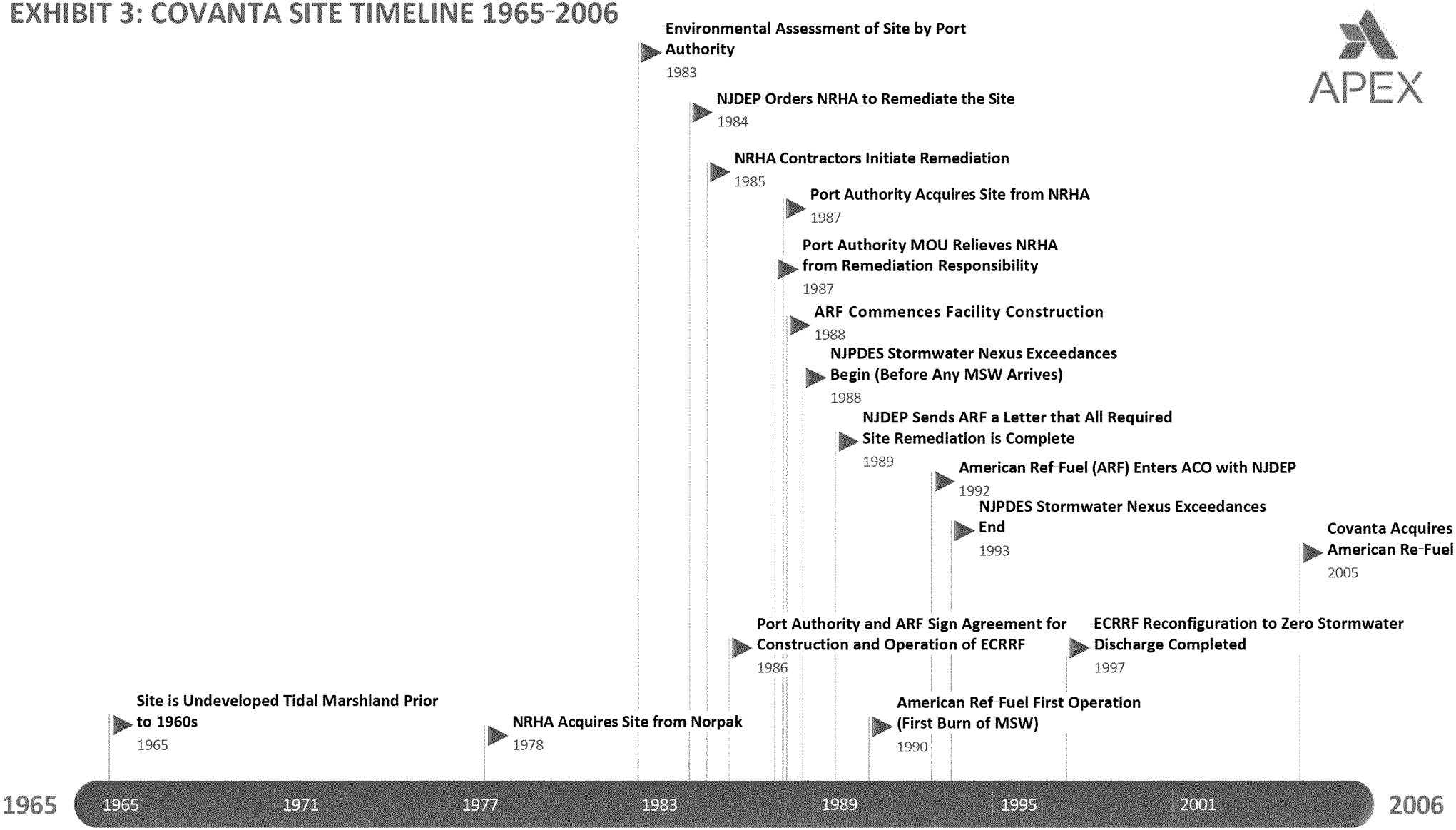


EXHIBIT 4 – HISTORIC LETTERS

United States Testing Company, Inc.
Biological Services Division
1415 PARK AVENUE
HOBOKEN, NEW JERSEY 07030 (201) 792-2400 (212) 943-0488

May 27, 1988

6.

Betty Boros
Industrial Wastewater Facilities Management
NJ DEP, Division of Water Resources
CN 029, Trenton, NJ 08625

Dear Ms. Boros,

I am writing in reference to American Ref-Fuel Co., NJPDES #0055247 DSN 001 and 002. The enclosed map is one of the construction site in Newark on the Passaic River which I visited yesterday. Not exactly a pristine location, if I do say so myself.

DSN 001 is well-defined as a metal effluent pipe from a settling pond which receives water from the dewatering operations from the main construction site and from runoff. The flow into the pond, however, may not occur daily and, when it does, may not last more than 2 or 3 hours. Its discharge depends on the dewatering operation. The initial permit was for 250 gal/min for 24 hours continuous dewatering of the site. J.A. Jones, the construction company, now estimates a maximum flow of 50 gal/day during working hours only; an average day would most likely be 30 gal/min for 4 or 5 hours. Yesterday, even after the heavy rains we have had over the past two weeks, dewatering operations were about 35 gal/min; the effluent flow from the pond was only 10 to 15 gal/min, approximately. The effluent release from 001, therefore, may not be more than a couple of hours, if than much, depending on other conditions.

Since 001 is obviously an intermittent discharge, a daily renewal bioassay is appropriate. I suggest that we collect samples appropriate to the discharge of a given test week. When the flow from dewatering and runoff combined is sufficient to elicit a discharge of several hours (meaning at least more than 4 hours), we will collect a composite for the duration of the discharge for that day. When it is less time, we will collect a grab sample. (The retention time of the pond, which is used solely for settling of solids, I crudely estimate as 3 to 5 hours at 30 gal/min influent flow. This may be reduced as silt deposits increase.) If the discharge does not occur on consecutive days during the test week, we will use a given day's samples for more than one renewal period. Under these circumstances, we may have to store samples for up to 96 hours during the test under refrigeration. We do not anticipate this happening, but it remains a possibility.

A. 0000002

002 is an even more complicated situation because the point of discharge is not clearly defined (refer to map) and because of multiple contributors. Note first that eventually a drainage ditch will be built to receive runoff, running parallel to the present drainage ditch, and empty into the pond thereby contributing to 001 discharge. The

present "west ditch" originally, as best as can be determined, began where a ditch from the Norpak plant runs onto the property (point D). The open ditch above that point was newly dug. Above the new ditch are two sections of buried conduit ending at points C and B. In between the buried conduits is another constructed open ditch. Above point A may be an open ditch, of sorts, depending on one's definition. The whole ditch system receives runoff from the American Ref-Fuel site, Norpak plant, Fairmont Chemical plant, and Blanchard Street, not to mention an area containing active (?) railroad tracks. It also receives local dewatering effluent from near points A and B on occasion. Point E is where the west ditch empties into a larger ditch that is under tidal influence and empties into the Passaic, approximately 200 yds away. 001 also empties into this final ditch.

Although runoff from the American Ref-Fuel site may run into the west ditch below point D, there are too many upstream contributors (Norpak, in particular) to collect an unconfounded sample here. Point C appears to be a logical 002 because it is a defined pipe approximately 25 yards upstream of the Norpak input at point D, but it also receives runoff from off-site locations (Norpak, Fairmont Chemical, Blanchard Street). Sampling at point B may be more desirable since it too is a pipe outfall above any apparent surface input from Norpak. There are still, however, other off-site contributors (see above).

Since 002 is obviously intermittent with more variable flow than 001, we suggest the same sampling regime; i.e., composite daily during flow periods greater than 4 hours or grabs if less than 4 hours. The bioassay will also be a daily renewal. We wish to use our discretion in determining the site of 002 collection. Points B and C are the most likely candidates, but we cannot be certain until we witness a rain event. The amount of runoff that might find its way to the open ditch between the two buried pipes (ending at points B and C) would be minor compared to the other sources contributing to the effluent.

On another topic, the receiving water, Passaic River, in the immediate vicinity of the site has several point and non-point source discharges. A large landfill is directly across the river from the site and permit nos. 0034746, 0025950, 0000566, 0000639, 0002801, 0002194, 0028185 and 0020443 are within about 1 mile upstream. More may be applicable, but I have no knowledge of them. We will attempt to find a site for dilution water collection above the mixing zones of these discharges.

The diluent that far upstream, however, will have a salinity of $\leq$ 1ppt. The Passaic River less than one half mile upstream from the site typically has a salinity between 1 and 2 ppt. I assume the intent is to use Mysidopsis bahia as the test species because eventually the effluent enters higher salinity waters even though the immediate receiving water is borderline. Note that both the effluent and diluent will have to be salinity-adjusted with artificial sea salts in order to use mysids in the bioassays.

One final problem is that of acclimation for bioassays of 002. How does one predict when a storm event will be sufficient for a runoff event two days before the event? The DEP in its infinite wisdom cannot seriously expect a laboratory to keep test organisms, particularly mysids, continuously acclimated in the event a storm occurs. In addition, since 002 also receives dewatering effluent, any runoff effluent in 002 is most likely to consist of both runoff and dewatering effluent. (If it rains, they have to dewater a construction site.)

We propose to set up sampling of dewatering effluent only and of runoff events on an alternate quarterly basis. We request, however, that, if necessary, the acclimation-of-test-organisms requirement be waived for the rain event sampling and that we substitute an additional control (in replicate) using rearing water to assure that the organisms are healthy. This is particularly important since collected dilution water from the Passaic River in this area during rain events can easily be toxic; consider the non-point sources of runoff. Note that if a rain event occurs during a sampling week in which a dewatering effluent bioassay is scheduled for 002, all the better.

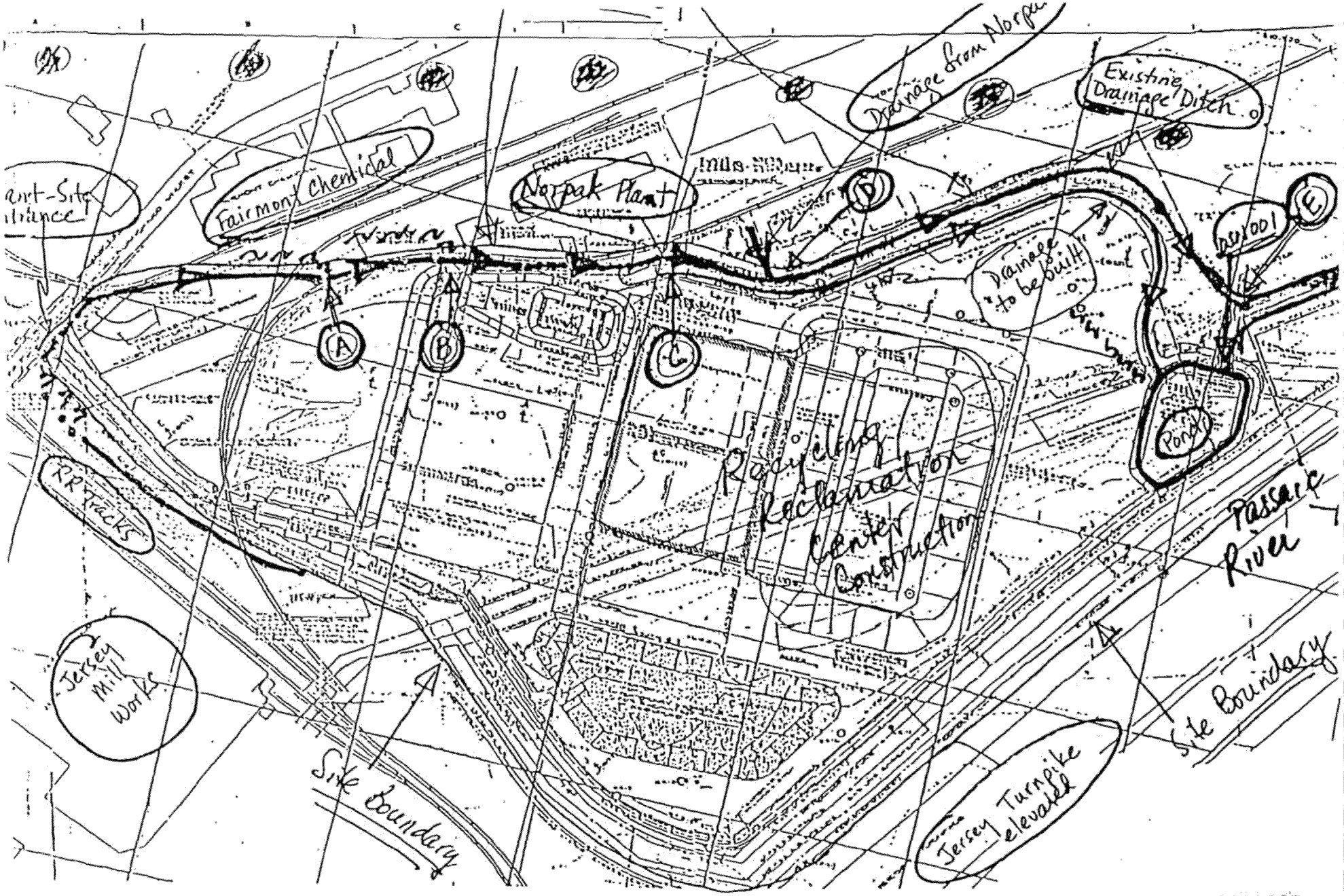
I require your response to these proposals before I can complete the Biomonitoring Questionnaire. Discharge from 001 and 002 has begun within the past 2 to 3 weeks. The biomonitoring, therefore, must commence in the next two months and the questionnaire should be in your hands 2 months before we start. Your response cannot be tardy.

I hope the supplied information is sufficient for you to make a decision. If not, please contact me.

Yours truly,

Bruce Tepper, Ph.D.
Manager, Ecotoxicology

cc: Bob Gaibrois, Woodward-Clyde



ARF 0000005

DATE: _____ INSPECTOR: _____

= PRE-EXCAVATION SUI

= buried drainage conduit ~ ~ ~ = dewat ing line (may vary in locations, flow rate, &

= drainage ditch

ED_001331_00001018-00022

AMERICAN
REF-FUEL™
CONSTRUCTION OF ESSEX COUNTY, INC.

27 July 1988
Reference NJPDES Permit
No. NJ0055247

Ms. Betty Boros
Industrial Wastewater Facilities Management
State of New Jersey
Department of Environmental Protection
Division of Water Resources
CN029
Trenton, New Jersey 08625

SUBJECT: Essex County Resource Recovery Facility
Sampling Locations
ARS-DEP-L-144

Dear Ms. Boros,

This letter is in reference to our NJPDES Permit No. NJ0055247, dated February 1, 1986. The permit specifies two sampling locations, 001 and 002, which would provide for site water runoff once our facility is completed. During construction, temporary location 001 is serving as the discharge location for most of the runoff from the site and for discharges from our dewatering operations; it is and has always been our intention to sample that location throughout the construction phase. We had not intended to sample 002, since it does not exist at present. There is, however a ditch and culvert system that 002 will eventually discharge into; that system provides primarily for the transport of water from upstream sources. The only areas where on-site water currently enters the system is that portion of the system where the ditch exists and whatever inflow occurs into the culverts. During an inspection by NJDEP representatives on April 18, 1988, we were informed that it was their interpretation that an 002 location was to have been sampled during the construction phase of the project, presumably at some point in the ditch/culvert system. Subsequently, we received an unacceptable compliance rating in a June 23, 1988 letter from Mr. Thomas Harrington.

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TELEPHONE 201/344-7704 • TELECOPIER 201/344-7839

By letter dated June 24, 1988, I provided clarifying information regarding our understanding of the sampling requirements.

Pending consideration of the applicability of 002 sampling, it is our intention to sample the ditch/culvert system into which 002 will eventually discharge. We have, however, several technical concerns we would like to bring to your attention. Our first and primary concern is that since the water which will be tested is primarily from off-site locations, a discharge which exceeded the permit limitations would inappropriately be associated with our location. Secondly, since the ditch/culvert system serves as a stormwater discharge, we may have difficulty in obtaining samples in the event that we do not receive sufficient rainfall to result in a discharge through the ditch/culvert system during working hours. Finally, the required bioassay testing calls for either flow through or static renewal testing. Since testing will occur off-site, static renewal would be the logical choice. However, the intermittent nature of the ditch/culvert system makes it highly unlikely that a sufficient quantity of water would be available to routinely supply the 96-hour test. It would be our preference, should you determine that 002 sampling should occur during construction in the ditch/culvert system, that the bioassay testing be only mandated for 001. We feel that this is justified since that discharge is most reflective of site water runoff. Should you determine that bioassay testing must be accomplished for the ditch/culvert system, we understand that you will reach an "agreed to" protocol for the testing with Dr. Tepper of our contract laboratory.

Pending your consideration of the above, we will do the following:

- Transmit previous testing results under separate cover.
- Prepare for full compliance testing, including bioassay, in August for temporary 001 and a substitute 002 in the ditch/culvert system. In the next couple of days, we will send you protocols for the bioassay testing at the two locations.

It is my hope that we can resolve the above issues to our mutual satisfaction. In the event that you feel a meeting of appropriate parties would be fruitful, we are available at your earliest convenience.

Respectfully,
T.M. Spurkosky
Site Manager

by: J. Waffenschmidt
Manager, Environmental,
Health & Safety

JW/rlw

C M. Wilusz (NJDEP)
T. Harrington (NJDEP)
K. Beyer (NJDEP)
R. Barsema
W. Clepper
T. Mohsenzadeh
J. Waffenschmidt
T. Cobb
R. Cronin
J. Cessna
File: Corres to NJDEP
File: Ground Water Discharge

AMERICAN REF-FUEL COMPANY OF ESSEX COUNTY

8 April 1991

Robert Oberthaler
NJDEP
DWR
Bureau of Industrial Discharge
Trenton, NJ 08625

SUBJECT: Essex County Resource Recovery Facility
NJPDES-DSWNJ0055247
Addendum to NJPDES Application Dated 6/20/90
ARE-NJDEP-L-1556

Dear Mr. Oberthaler:

Per our conversation of 2/8/91 with Eric Sussman, this letter is sent on behalf of American Ref-Fuel Company of Essex County. It constitutes an update and new cover for the ECRRF NJPDES-DSW renewal permit that was submitted on June 20, 1990. We appreciate the opportunity to provide further input into the renewal process. The information is provided as sections in order to facilitate review.

FACILITY MONITORING HISTORY

To briefly summarize the monitoring history of the facility, monthly sampling under the NJPDES permit for discharge source number (DSN) 001 has been conducted since June of 1988 and quarterly bioassays have been conducted since August of 1988. During this monitoring time frame, extensive construction activity occurred. Pumping of groundwater (de-watering) was conducted as per our Water Allocation permit during bunker construction. This water, stormwater, and some off-site water, was directed to and discharged from a sedimentation pond through an alternate DSN 001. The second discharge point for the facility, DSN 002, did not exist as a point source discharge until October of 1990.

During the monitoring of DSN 001, certain parameters were found to be troublesome from a compliance perspective. Total Suspended Solids (TSS), fecal coliform, and chemical oxygen demand (COD) were typically the parameters for which apparent exceedances were

183 RAYMOND BOULEVARD • NEWARK, NEW JERSEY 07105
TELEPHONE 201/344-0900 • FAX 201/344-4999

experienced. Low flows as well as algal blooms were typical during the sampling events. Previous correspondence with Kevin Marlowe, NJDEP Metro Region Water Enforcement, addressed the issues of these apparent exceedances and subsequent attempts to correct the perceived roots. Temporary corrective measures included placement and maintenance of hay bales, use of erosion fencing, use of filters in the individual drainage inlets, and use of a filter material placed on the discharge pipe of the sedimentation control pond. More permanent measures with regard to treatment works were not feasible from the standpoint of time involved with permitting considerations with relation to the elimination of the sediment pond from the final facility configuration.

Since the onset of monitoring of stormwater discharge from DSN 002, we have experienced similar apparent exceedances with TSS, fecal coliform, and COD. We are currently actively seeking to retain an engineering firm to evaluate the overall site drainage and prepare a plan to address the exceedance issues. We feel confident that the end of the construction period, the establishment of site flora, and the drainage review plan will substantially address the apparent discharge exceedances.

REQUEST FOR MONITORING RELIEF

Due to the proximity of the facility construction to the abandoned Ottilio Landfill (a listed NJDEP mitigation site) a concern existed that the de-watering process could serve to draw contaminants onto the construction site. The concern for this possible migration from off-site was reflected in both the Water Allocation permit and the NJPDES permit. Monthly sampling and analyses of two boundary monitoring wells were conducted separate from the monthly NJPDES routine. De-watering and monthly well sampling ceased as of March 31, 1989, however, the full analytical NJPDES monitoring has still been conducted.

We would like to be granted relief from certain current NJPDES permit parameters. Presented as follows for your consideration are a portion of the monitoring parameters and the rationale for granting relief from these parameters:

+Fecal Coliform - Storm water would not be expected to contain coliform mater. We believe that our continuing exceedance problem involving fecal coliform is the result of:

Sediment pond - animal life and stagnant water conditions

Storm sewer lines - dry sediment deposition and stagnant water contribution from the Passaic River

No process or production exists on-site that would generate this type of material. The storm water and sanitary sewer lines are separately piped systems. In an attempt to address overall exceedance contributions from sediment deposition in the storm sewers, we will be cleaning the lines of debris and sediment. The stagnant water issue is beyond the control of the facility due to the low elevation of the discharge points. We would ask that this item be eliminated from the permit.

+Cyanide - Cyanide and cyanide compounds are typically associated with a plating or manufacturing process. We have no reason to believe that cyanide would be present in the monitored discharge. The analyses for cyanide content have never been reported to be above analytical detection limits. We request that this parameter be eliminated.

+Volatiles - Solvent usage of benzene, ethylbenzene, toluene, methyl chloroform, or methylene chloride is non-existent to minimal. These parameters were incorporated into the original permit to address migration of these materials onto the property from the Ottilio Landfill. We would ask that these volatiles be eliminated from the permit.

+Organic toxic pollutants - Analysis for priority pollutants plus tentatively identified compounds (TICs) for the well samples were required during the de-watering phase of the project. These parameters were also incorporated into the original NJPDES permit to monitor on-site contaminant migration from the Ottilio site. As mentioned above, the de-watering for the bunker area ended as of March 31,1989. During the NJPDES monitoring period for volatiles and toxic pollutants, the only period of exceedance occurred during July 1989. This exceedance was an isolated event that occurred after the de-watering phase, and subsequent re-sampling resulted in no detectable levels of these materials; as such we ask that these be eliminated from the permit.

+Acute bioassay - This monitoring issue has been addressed numerous times with the Bureau of Industrial Discharge Permits. A total of 11 bioassays have been run and, of this number, only two exhibited toxicity at 100% concentration of effluent. The last bioassay result exhibiting mortality was July 1989. Our understanding is that we can request relief from this parameter after one year of quarterly testing with the site's final configuration in place. We would like to pursue this option and would appreciate your input on this point.

CHEMICAL STORAGE/ASH HANDLING

Per your request of 2/11/91, we are enclosing further information as to the types of chemicals stored on-site and the locations of the materials. For DSN 001, the phosphoric acid tank, the three lime silos, the ash tarping station, and the future ammonium hydroxide tank are located within the area served by two inlets which lead to DSN 001.

For DSN 002, the underground fuel oil tank and the sulfuric acid tank are located within the drainage service area. In addition, the fill port for the sodium hydroxide tank, which is housed inside a building, is also located in close proximity to this storage area. Currently the primary drainage inlet for this area has been sealed shut and the future of this drainage inlet is to be determined during the review of the site drainage.

The storage tanks are provided with secondary containment and a variety of alarm devices. As mentioned above, petroleum based products may be contained in one of four ways. Standard operating procedures (SOPs) which address regulatory concerns as well as best management practices are followed by operational personnel. In addition, the facility is manned

24 hours a day by trained personnel and the site is fenced with a manned patrol provided.

Ash handling functions (i.e. collection and conveying of ash streams, ash treatment, ferrous recovery, ash storage and loading of trailers) are located inside buildings or enclosures. The loaded ash trailers are pulled outside of the building and tarping occurs within a protected area called the ash tarping station. Trailers are also loaded with the ferrous product recovered from the ash. The drag out of ash from the enclosed areas is minimized by housekeeping practices.

FLOW MEASUREMENT

In the past, flow has been calculated primarily by the "bucket and stopwatch" method. This value had then been extrapolated to reflect a monthly flow. This method highly inflates the actual discharge quantity because flow was calculated for days when no flow actually occurred. Conversely, instrument methods do not lend themselves readily to be utilized for low flow events. We would ask that this parameter be eliminated from monitoring since the stormwater flow does qualify as a process discharge. Alternatively, in an attempt to more accurately reflect discharge quantity, we anticipate incorporating a on-site rain gauge as well as use of the National Weather Service for information relating to precipitation data. Run-off coefficients and areas of drainage (in acreage) for DSN 001 and DSN 002 have been determined.

SAMPLING POINTS

Many discussions have occurred as to the Passaic River's tidal influence on DSN 001 and DSN 002. Even during low tide events some amount of river water is standing in the ditches and in the discharge structures. In order to gain some relief from this tidal influence we have moved sampling upstream of DSN 001 and DSN 002 to the nearest drainage inlets.

These drainage inlets chosen to serve as sampling points after a review of stormwater piping diagrams was conducted. These two drainage inlet points serve as convergence points for the two separate stormwater piping segments. (Attachment 1 & 2) Sampling from these points will be representative of the ultimate discharges from DSN 001 and DSN 002. The drainage inlets have been modified in order to accept sampling devices.

As per your suggestion, we were considering conducting a stormwater flow study. However, upon review of the drainage drawings, it was quickly apparent that sampling at other than the drainage inlets chosen (i.e. further upstream than those chosen) would generate additional sampling requirements.

ACCESS ROAD DISCHARGE

An application which reflected two stormwater discharge points from the facility access road was submitted to your department on June 7, 1988. In response to a request from

American Ref-Fuel, both yourself and Gutam Patel visited the facility on September 14, 1990. During a tour of the access road, off-site impact from the Conrail railroad embankment was visible in the form of sediment which had washed onto the access road. Potential contributory stormwater flows from the Conrail overpass, the New Jersey Turnpike and PSE&G properties to the drainage inlets were noted.

Per Mr. Patel's recommendation, a letter, which addressed a "best management practice" approach for diversion of sediment from the storm drains was sent to Robert Oberthaler on September 28,1990. Subsequent correspondence lead to the letter dated February 28, 1991, which provided to Mr. Oberthaler a two phase approach to sediment control. This approach was developed by the Port Authority of New York and New Jersey. We trust that this submittal proves to resolve the access road discharge monitoring issue and that this "best management practice" approach will be approved by your department.

FUTURE PERMITTING NEEDS

As you are aware, during the recent NJPDES annual inspection, a potential unpermitted discharge point next to DSN 002 was cited by Kevin Marlowe. Upon further investigation, this pipe is currently not receiving drainage from the site and the origin of the water in the pipe was the West Ditch tidal water. Once final landscaping is completed, the discharge from this pipe will be a combination of on-site and off-site drainage with the majority of drainage contribution originating from off-site. We would like to establish a meeting to address this particular potential discharge point, inclusive of engineered details, history, best management practice approaches available, permitting requirements, etc.

In addition, we anticipate that the drainage from the ash trailer staging area will require treatment works for the stormwater run-off as well as qualify as a separate discharge monitoring point. We would like to again utilize the format of the regulatory Task Force meetings to address not only NJPDES permitting needs but other permitting needs as well.

Finally, we are conducting some engineering investigations to attempt to bring our effluent discharges to the highest possible standard. These engineering investigations may well identify other areas requiring changes to the permit.

AMENDED FORMS

We are currently amending forms CP #1 and EPA form 2C. These amendments will serve to update the information originally submitted in June of 1990. These forms will follow under separate cover.

CONCLUSION

Addressing the NJPDES parameter exceedances by focusing resources on plant drainage and ash trailer staging issues is a priority for American Ref-Fuel Company of Essex County. We recognize and appreciate your cooperation and assistance during this renewal process. If you require additional information, please do not hesitate to call Laurie Cooper at (201)-344-0900.

Sincerely,

John G. Waffenschmidt
Assistant Director
of Environmental Compliance

C K. Marlowe (NJDEP)
E. Sussman (NJDEP)

L1556.JGW
WP040591/lah

TABLES

Table 1

Quanties and Limits Tested and Reported on DMRs under NJPDES Permit #0055247

Effluent Characteristic	Historic Frequency	Sample Type	Historic	Current DSN001A	DSN001A DMR Submission Frequency	Current DSN002A	DSN002A DMR Submission Frequency	Current Impoundment IP01	IP01 Sampling Frequency
Benzene	Monthly	Grab	Y	N		N		N	
Ethylbenzene	Monthly	Grab	Y	N		N		N	
Toluene	Monthly	Grab	Y	N		N		N	
1,1,1-Trichloroethane	Monthly	Grab	Y	N		N		N	
Methylene Chloride	Monthly	Grab	Y	N		N		N	
Total Toxic Organics	Monthly	Grab	Y	N		N		N	
Petroleum Hydrocarbons (TPH or PHC	Monthly	Multiple Grab	Y	N		N		N	
Oil and Grease (O&G)			N	15 mg/l	Quarterly	15 mg/l	1/YR	Monitor Only	1/YR
Aquatic Toxicity (Bioassay)	Quarterly	Grab	Y	N		N		N	
Flow	Bi-Weekly	Grab	Y	N		N		N	
Total Suspended Solids (TSS)	Bi-Weekly	Grab	Y	Monitor Only	Quarterly	Monitor Only	1/YR	Monitor Only	1/YR
Ph	Bi-Weekly	Grab	Y	Monitor Only	Quarterly	Monitor Only	1/YR	Monitor Only	1/YR
Phenol			N	Monitor Only	Quarterly	N		Monitor Only	1/YR
Fecal Coliform	Monthly	Grab	Y	N		N		N	
Chemical Oxygen Demand (COD)	Bi-Weekly	Grab	Y	Monitor Only	Quarterly	Monitor Only	1/YR	Monitor Only	1/YR
Biochemical Oxygen Demand			N	Monitor Only	Quarterly	N		Monitor Only	1/YR
Ammonia			N	Monitor Only	Quarterly	N		Monitor Only	1/YR
Arsenic	Monthly	Grab	Y	N		N		N	
Cadmium	Monthly	Grab	Y	N		N		N	
Copper	Monthly	Grab	Y	N		N		N	
Cyanide	Monthly	Grab	Y	N		N		N	
Lead	Monthly	Grab	Y	N		N		N	
Nickel	Monthly	Grab	Y	N		N		N	
Zinc	Monthly	Grab	Y	Monitor Only	Quarterly	N		Monitor Only	1/YR

Note: Site is presently in zero discharge mode for DNS001A and DNS002A.
DSN001A and DSN002A are only sampled during large storm events that exceed the plant's water storage capacity and cause actual discharges to occur.
The Impoundment is sampled annually.

Definitions and Units

Y - yes
N - no
mg/l - milligrams per liter

APEX

Table 2

Listing of All Stormwater NJPDES Exceedances Noted in Nexus Documents Received by Covanta

DSN001 Exceedances

Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
1	Aug-88		Total Coliform	No Value Found	400 FC/100ml (max)	ARF0000017	Stated as an exceedance but no numerical value could be found
2	Jul-89	DSN001	1,1,1-TCA	4,600ppb	N/A	ARF0000047	High concentration of TCA required sample dilution resulting in high DLs for other compounds
	Jul-89	DSN001	Benzene	N/A	N/A	ARF0000043	DL > Compliance Limit - not a true detection
	Jul-89	DSN001	Methylene chloride	N/A	50 ug/l	ARF0000043	DL > Compliance Limit - not a true detection
3	Jan-90	DSN001	pH	5.7 SU	6.0 - 9.0 SU	ARF0000043	
4	Mar-90	DSN001	COD	No Value found	100 mg/l	ARF0000044	
5	May-90	DSN001	Fecal Coliform	488 FC/100ml	200 FC/100ml (avg)	ARF0000069	
6	May-90	DSN001	Fecal Coliform	900 FC/100ml	400 FC/100ml (max)	ARF0000069	
7	May-90	DSN001	TSS	52 mg/l	50 mg/l	ARF0000069	
8	Jul-90	DSN001	Fecal Coliform	283 FC/100ml	200 FC/100ml (avg)	ARF0000069	
9	Jul-90	DSN001	Fecal Coliform	1600 FC/100ml	400 FC/100ml (max)	ARF0000069	
10	Aug-90	DSN001	TSS	51 mg/l	50 mg/l	ARF0000070	
11	Aug-90	DSN001	Fecal Coliform	900 FC/100ml	200 FC/100ml (avg)	ARF0000070	
12	Aug-90	DSN001	Fecal Coliform	900 FC/100ml	400 FC/100ml (max)	ARF0000070	
13	Aug-90	DSN001	Flow not Reported		Report	ARF0000070	
14	Oct-90	DSN001	TSS	104 mg/l	50 mg/l	ARF0000070	
15	Oct-90	DSN001	Flow not Reported		Report	ARF0000070	**FACILITY OPERATIONS BEGIN**
16	Dec-90	DSN001	COD	154 mg/l	100 mg/l	ARF0000070	
17	Dec-90	DSN001	TSS	67 mg/l	50 mg/l	ARF0000070	
18	Dec-90	DSN001	Fecal Coliform	500 FC/100ml	200 FC/100ml (avg)	ARF0000070	
19	Dec-90	DSN001	Fecal Coliform	500 FC/100ml	400 FC/100ml (max)	ARF0000070	
20	1/9/1991	DSN001	COD	652 mg/l	100 mg/l	ARF0000053	
21	1/9/1991	DSN001	TSS	232 mg/l	50 mg/l	ARF0000053	
22	1/9/1991	DSN001	TPH	55 mg/l	15 mg/l	ARF0000053	
23	1/9/1991	DSN001	TPH	47 mg/l	15 mg/l	ARF0000053	
24	1/9/1991	DSN001	TPH	73 mg/l	15 mg/l	ARF0000053	
25	1/9/1991	DSN001	Lead	230 ug/l	150 ug/l	ARF0000053	
26	1/9/1991	DSN001	Fecal Coliform	900 MPN/100ml	200 FC/100ml (avg)	ARF0000053	
27	1/9/1991	DSN001	Fecal Coliform	900 MPN/100ml	400 FC/100ml (max)	ARF0000070	
28	1/16/1991	DSN001	TSS	54 mg/l	50 mg/l	ARF0000053	
29	2/15/1991	DSN001	COD	129 mg/l	100 mg/l	ARF0000071	

APEX

Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
30	2/15/1991	DSN001	TSS	945 mg/l	50 mg/l	ARF0000071	
31	2/15/1991	DSN001	Fecal Coliform	4600 FC/100ml	200 FC/100ml (avg)	ARF0000071	
32	2/15/1991	DSN001	Fecal Coliform	4600 FC/100ml	400 FC/100ml (max)	ARF0000071	
33	3/14/1991	DSN001	COD	1420 mg/l	100 mg/l	ARF0000071	
34	3/14/1991	DSN001	TSS	84 mg/l	50 mg/l	ARF0000067	
35	3/14/1991	DSN001	PHC	25.7 mg/l	15 mg/l	ARF0000071	
36	3/14/1991	DSN001	Fecal Coliforn	3000 FC/100ml	200 FC/100ml (avg)	ARF0000071	
37	3/14/1991	DSN001	Fecal Coliform	3000 FC/100ml	400 FC/100ml (max)	ARF0000071	
38	3/14/1991	DSN001	TPH	25.7 mg/l	15 mg/l	DMR Report	
39	3/14/1991	DSN001	TPH	25.7 mg/l	15 mg/l	DMR Report	
40	3/15/1991	DSN001	TSS	84 mg/l	50 mg/l	DMR Report	
41	4/14/1991	DSN001	COD	240 mg/l	100 mg/l	DMR Report	
42	4/14/1991	DSN001	TSS	983 mg/l	50 mg/l	DMR Report	
43	4/14/1991	DSN001	TPH	25.1 mg/l	15 mg/l	DMR Report	
44	4/14/1991	DSN001	Fecal Coliform	3000 MPN/100ml	200 FC/100ml (avg)	DMR Report	
45	4/15/1991	DSN001	TSS	661 mg/l	50 mg/l	DMR Report	
46	4/15/1991	DSN001	TPH	25.1 mg/l	15 mg/l	DMR Report	
47	4/15/1991	DSN001	TPH	24.6 mg/l	15 mg/l	DMR Report	
48	4/15/1991	DSN001	Lead	260 ug/l	150 ug/l	DMR Report	
49	5/15/1991	DSN001	TSS	206 mg/l	50 mg/l	DMR Report	
50	5/15/1991	DSN001	Fecal Coliform	2400 MPN/100ml	200 FC/100ml (avg)	DMR Report	
51	6/15/1991	DSN001	COD	184 mg/l	100 mg/l	ARF0000088	
52	6/15/1991	DSN001	TSS	86 mg/l	50 mg/l	ARF0000088	
53	6/15/1991	DSN001	Fecal Coliform	4600 MPN/100ml	200 FC/100ml (avg)	ARF0000088	
54	6/15/1991	DSN001	Fecal Coliform	4600 MPN/100ml	400 FC/100ml (max)	ARF0000088	
55	7/15/1991	DSN001	Fecal Coliform	4600 MPN/100ml	200 FC/100ml (avg)	ARF0000089	
56	7/15/1991	DSN001	Fecal Coliform	4600 MPN/100ml	400 FC/100ml (max)	ARF0000089	
57	8/15/1991	DSN001	Fecal Coliform	5000 MPN/100ml	200 FC/100ml (avg)	ARF0000174	
58	8/15/1991	DSN001	Fecal Coliform	5000 MPN/100ml	400 FC/100ml (max)	ARF0000174	
59	8/15/1991	DSN001	COD	232 mg/l	100 mg/l	ARF0000174	
60	8/16/1991	DSN001	COD	116 mg/l	100 mg/l	ARF0000174	
61	8/16/1991	DSN001	TSS	480 mg/l	50 mg/l	ARF0000090	
62	8/16/1991	DSN001	TSS	400 mg/l	50 mg/l	ARF0000090	
63	9/15/1991	DSN001	Fecal Coliform	5254 MPN/100ml	200 FC/100ml (avg)	ARF0000209	
64	9/15/1991	DSN001	Fecal Coliform	6000 MPN/100ml	400 FC/100ml (max)	ARF0000209	
65	9/15/1991	DSN001	COD	4080 mg/l	100 mg/l	ARF0000174	
66	9/15/1991	DSN001	TSS	462 mg/l	50 mg/l	ARF0000091	
67	9/15/1991	DSN001	TSS	78 mg/l	50 mg/l	ARF0000091	

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Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
68	9/15/1991	DSN001	TPH	18.9 mg/l	15 mg/l	DMR Report	
69	9/15/1991	DSN001	pH	4.51 SU	6.0 - 9.0 SU	ARF0000209	
70	9/15/1991	DSN001	Fecal Coliform	6000 MPN/100ml	400 FC/100ml (max)	DMR Report	
71	10/15/1991	DSN001	Fecal Coliform	1600 MPN/100ml	200 FC/100ml (avg)	ARF0000134	
72	10/15/1991	DSN001	Fecal Coliform	1600 MPN/100ml	400 FC/100ml (max)	ARF0000134	
73	10/15/1991	DSN001	TSS	84 mg/l	50 mg/l	ARF0000134	
74	10/15/1991	DSN001	TSS	110 mg/l	50 mg/l	ARF0000174	
75	10/15/1991	DSN001	TSS	57 mg/l	50 mg/l	ARF0000174	
76	11/15/1991	DSN001	Fecal Coliform	1600 MPN/100ml	200 FC/100ml (avg)	ARF0000135	
77	11/15/1991	DSN001	Fecal Coliform	1600 MPN/100ml	400 FC/100ml (max)	ARF0000135	
78	11/15/1991	DSN001	COD	5860 mg/l	100 mg/l	ARF0000135	
79	11/15/1991	DSN001	TSS	398 mg/l	50 mg/l	ARF0000135	
80	11/15/1991	DSN001	TPH	309 mg/l	15 mg/l	ARF0000135	
81	11/15/1991	DSN001	TPH	No Value Found	15 mg/l	ARF0000105	Violation assumed by permittee but not claimed by agency
82	11/15/1991	DSN001	TPH	No Value Found	15 mg/l	ARF0000105	Violation assumed by permittee but not claimed by agency
83	12/3/1991	DSN001	COD	130 mg/l	100 mg/l	ARF0000174	
84	12/13/1991	DSN001	Fecal Coliform	2300 MPN/100ml	200 FC/100ml (avg)	ARF0000135	
85	12/13/1991	DSN001	Fecal Coliform	2300 MPN/100ml	400 FC/100ml (max)	ARF0000135	
86	12/13/1991	DSN001	TSS	146 mg/l	50 mg/l	ARF0000174	
87	1/31/1992	DSN001	COD	2500 mg/l	100 mg/l	ARF0000135	
88	1/31/1992	DSN001	TSS	258 mg/l	50 mg/l	ARF0000135	
89	1/31/1992	DSN001	TSS	120 mg/l	50 mg/l	ARF0000174	
90	1/31/1992	DSN001	PHC	335 mg/l	15 mg/l	ARF0000135	ARF0000174 says 247 mg/l
91	1/31/1992	DSN001	pH	5.9 SU	6.0-9.0 SU	ARF0000142	
92	1/31/1992	DSN001	Fecal Coliform	5900 MPN/100ml	200 FC/100ml (avg)	ARF0000174	
93	1/31/1992	DSN001	Fecal Coliform	5900 MPN/100ml	400 FC/100ml (max)	ARF0000174	
94	2/29/1992	DSN001	COD	134 mg/l	100 mg/l	ARF0000142	
95	2/29/1992	DSN001	TSS	82 mg/l	50 mg/l	ARF0000142	
96	2/29/1992	DSN001	Fecal Coliform	2400 MPN/100ml	200 FC/100ml (avg)	ARF0000142	
97	2/29/1992	DSN001	Fecal Coliform	2400 MPN/100ml	400 FC/100ml (max)	ARF0000142	
98	3/11/1992	DSN001	COD	438 mg/l	100 mg/l	ARF0000119	Violation assumed by permittee but not claimed by agency
99	3/11/1992	DSN001	TSS	66 mg/l	50 mg/l	ARF0000119	
100	3/3?/1992	DSN001	COD	1740 mg/l	100 mg/l	ARF0000119	
101	3/3?/1992	DSN001	TSS	3630 mg/l	50 mg/l	ARF0000119	
102	3/3?/1992	DSN001	pH	5.45 SU	6.0-9.0 SU	ARF0000119	

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Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
103	3/3?/1992	DSN001	Fecal Coliform	16,000 MPN/100ml	200 FC/100ml (avg)	ARF0000119	
104	3/3?/1992	DSN001	Fecal Coliform	16,000 MPN/100ml	400 FC/100ml (max)	ARF0000119	
105	1Q92	DSN001	Aquatic Toxicity	42%	50% minimum	ARF0000135	
106	4/22/1992	DSN001	COD	124 mg/l	100 mg/l	ARF0000122	
107	4/22/1992	DSN001	Fecal Coliform	940 MPN/100ml	200 FC/100ml (avg)	ARF0000122	
108	4/22/1992	DSN001	Fecal Coliform	940 MPN/100ml	400 FC/100ml (max)	ARF0000122	
109	2Q92	DSN001	Aquatic Toxicity	0%	50% minimum	ARF0000126	High salinity was noted as a possible factor
110	5/8/1992	DSN001	COD	168 mg/l	100 mg/l	ARF0000146	
111	5/8/1992	DSN001	Fecal Coliform	10,600 MPN/100ml	200 FC/100ml (avg)	ARF0000146	
112	5/8/1992	DSN001	Fecal Coliform	10,600 MPN/100ml	400 FC/100ml (max)	ARF0000146	
113	6/19/1992	DSN001	COD	132 mg/l	100 mg/l	ARF0000151	
114	6/19/1992	DSN001	TSS	124 mg/l	50 mg/l	ARF0000151	
115	6/19/1992	DSN001	Fecal Coliform	2940 MPN/100ml	200 FC/100ml (avg)	ARF0000151	
116	6/19/1992	DSN001	Fecal Coliform	2940 MPN/100ml	400 FC/100ml (max)	ARF0000151	
117	6/24/1992	DSN001	COD	436 mg/l	100 mg/l	ARF0000151	
118	7/23/1992	DSN001	COD	199 mg/l	100 mg/l	ARF0000160	
119	7/23/1992	DSN001	Fecal Coliform	2400 MPN/100ml	200 FC/100ml (avg)	ARF0000160	
120	7/23/1992	DSN001	Fecal Coliform	2400 MPN/100ml	400 FC/100ml (max)	ARF0000160	
121	9/10/1992	DSN001	COD	1033 mg/l	100 mg/l	ARF0000175	
122	9/10/1992	DSN001	TSS	58 mg/l	50 mg/l	ARF0000175	
123	9/10/1992	DSN001	Fecal Coliform	2200 MPN/100ml	200 FC/100ml (avg)	ARF0000175	
124	9/10/1992	DSN001	Fecal Coliform	2200 MPN/100ml	400 FC/100ml (max)	ARF0000175	
125	11/3/1992	DSN001	COD	158 mg/l	100 mg/l	ARF0000214	
126	11/3/1992	DSN001	COD	179 mg/l	100 mg/l	ARF0000214	
127	11/3/1992	DSN001	TSS	138 mg/l	50 mg/l	ARF0000214	
128	11/3/1992	DSN001	Fecal Coliform	3000 MPN/100ml	200 FC/100ml (avg)	ARF0000214	
129	11/3/1992	DSN001	Fecal Coliform	3000 MPN/100ml	400 FC/100ml (max)	ARF0000214	**INTERIM ACO LIMITS ESTABLISHED 12/1/1992**
130	2/8/1993	DSN001	Zinc	1080 ug/l	600 ug/l	ARF0000239	
131	2/8/1993	DSN001	Fecal Coliform	31257 MPN/100ml	5800 MPN/100ml	ARF0000239	Interim ACO limit
132	3/15/1993	DSN001	Fecal Coliform	73387 MPN/100ml	5800 MPN/100ml	ARF0000246	Interim ACO limit
133	4/1/1993	DSN001	Fecal Coliform	323995 MPN/100ml	5800 MPN/100ml	ARF0000253	Interim ACO limit
	4/1/1993	DSN001	COD	670	675	ARF0000273	Not a violation of interim ACO limit
	4/1/1993	DSN001	TSS	57	250	ARF0000273	Not a violation of interim ACO limit
	5/15/1993	DSN001	COD	290	675	ARF0000280	Not a violation of interim ACO limit
134	5/15/1993	DSN001	pH	5.95	6.0 - 9.0	ARF0000280	
	5/15/1993	DSN001	TSS	136	250	ARF0000280	Not a violation of interim ACO limit
135	6/9/1993	DSN001	TSS	319	250	ARF0000277	
136	6/9/1993	DSN001	Aquatic Toxicity	3.70%	50% minimum	ARF0000277	

Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
137	6/9/1993	DSN001	Fecal Coliform	16000 MPN/100ml	5800 MPN/100ml	ARF0000277	
138	6/9/1993	DSN001	Methylene Chloride	61 ug/l	50 ug/l	ARF0000277	Likely not a true exceedance. Lab Contaminant. Detected in method blank.
139	7/3/1993	DSN001	COD	3725 mg/l	675 mg/l	ARF0000282	
140	7/3/1993	DSN001	TSS	4132 mg/l	250 mg/l	ARF0000282	
141	7/3/1993	DSN001	Fecal Coliform	18623 MPN/100ml	5800 MPN/100ml	ARF0000282	
142	7/3/1993	DSN001	pH	5.25 SU	6.0 - 9.0 SU	ARF0000282	
143	7/15/1993	DSN001	pH	5.76 SU	6.0 - 9.0 SU	ARF0000282	
144	8/6/1993	DSN001	Fecal Coliform	2,600,000 CFU/100ml	5800 MPN/100ml	ARF0000291	
145	8/6/1993	DSN001	Lead	169 ug/l	150 ug/l	ARF0000291	
146	8/6/1993	DSN001	pH	5.7 SU	6.0 - 9.0 SU	ARF0000291	

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DSN002 Exceedances

Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
1	10/15/1990	DSN002	TSS	67 mg/l	50 mg/l	ARF0000070	
2	10/1/1990	DSN002	Fecal Coliform	3000 FC/100ml	200 FC/100ml (avg)	ARF0000070	
3	10/1/1990	DSN002	Fecal Coliform	3000 FC/100ml	400 FC/100ml (max)	ARF0000070	
4	10/1/1990	DSN002	Flow not Reported	N/A	Report	ARF0000070	FACILITY OPERATIONS BEGIN
5	12/1/1990	DSN002	COD	103 mg/l	100 mg/l	ARF0000070	
6	12/1/1990	DSN002	TSS	92 mg/l	50 mg/l	ARF0000070	
7	12/1/1990	DSN002	Zinc	1600 ug/l	600 ug/l	ARF0000070	
8	12/1/1990	DSN002	Fecal Coliform	1100 FC/100ml	200 FC/100ml (avg)	ARF0000070	
9	12/1/1990	DSN002	Fecal Coliform	1100 FC/100ml	400 FC/100ml (max)	ARF0000070	
10	1/9/1991	DSN002	TSS	200 mg/l	50 mg/l	ARF0000053	
11	1/9/1991	DSN002	Lead	200 ug/l	150 ug/l	ARF0000053	
12	1/9/1991	DSN002	Zinc	810 ug/l	600 ug/l	ARF0000053	
13	1/9/1991	DSN002	Fecal Coliform	240 MPN/100ml	200 FC/100ml (avg)	ARF0000053	
14	1/16/1991	DSN002	TSS	126 mg/l	50 mg/l	ARF0000053	
15	1/16/1991	DSN002	COD	229 mg/l	100 mg/l	ARF0000053	
16	2/15/1991	DSN002	COD	353 mg/l	100 mg/l	ARF0000071	
17	2/15/1991	DSN002	Fecal Coliform	240 FC/100ml	200 FC/100ml (avg)	ARF0000071	
18	3/14/1991	DSN002	COD	126 mg/l	100 mg/l	ARF0000071	
19	3/14/1991	DSN002	pH	9.48 SU	6.0 - 9.0 SU	ARF0000071	
20	3/15/1991	DSN002	TSS	208 mg/l	50 mg/l	ARF0000071	
21	4/14/1991	DSN002	COD	198 mg/l	100 mg/l	DMR Report	
22	4/14/1991	DSN002	TSS	678 mg/l	50 mg/l	DMR Report	
23	4/14/1991	DSN002	TPH	26 mg/l	15 mg/l	DMR Report	
24	4/14/1991	DSN002	Fecal Coliform	2400 MPN/100ml	200 FC/100ml (avg)	DMR Report	
25	4/15/1991	DSN002	TPH	26 mg/l	15 mg/l	DMR Report	
26	4/15/1991	DSN002	TPH	24.8 mg/l	15 mg/l	DMR Report	
27	4/15/1991	DSN002	Lead	295 ug/l	150 ug/l	DMR Report	
28	4/15/1991	DSN002	Zinc	934 ug/l	600 ug/l	DMR Report	
29	5/15/1991	DSN002	Fecal Coliform	1600 MPN/100ml	400 FC/100ml (max)	DMR Report	
30	6/15/1991	DSN002	Fecal Coliform	1600 MPN/100ml	200 FC/100ml (avg)	ARF0000088	
31	6/15/1991	DSN002	Fecal Coliform	1600 MPN/100ml	400 FC/100ml (max)	ARF0000088	
32	7/15/1991	DSN002	Fecal Coliform	500 MPN/100ml	200 FC/100ml (avg)	ARF0000089	
33	7/15/1991	DSN002	Fecal Coliform	500 MPN/100ml	400 FC/100ml (max)	ARF0000089	
34	8/15/1991	DSN002	Fecal Coliform	1900 MPN/100ml	200 FC/100ml (avg)	ARF0000174	
35	8/15/1991	DSN002	Fecal Coliform	1900 MPN/100ml	400 FC/100ml (max)	ARF0000174	
36	9/15/1991	DSN002	Fecal Coliform	2400 MPN/100ml	200 FC/100ml (avg)	ARF0000174	
37	9/15/1991	DSN002	Fecal Coliform	2400 MPN/100ml	400 FC/100ml (max)	ARF0000174	

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Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
38	9/15/1991	DSN002	Fecal Coliform	3795 MPN/100ml	200 FC/100ml (avg)	ARF0000209	
39	9/15/1991	DSN002	Fecal Coliform	6000 MPN/100ml	400 FC/100ml (max)	ARF0000209	
40	9/15/1991	DSN002	COD	161 mg/l	100 mg/l	ARF0000174	
41	9/15/1991	DSN002	TSS	145 mg/l	50 mg/l	ARF0000174	
42	10/15/1991	DSN002	Fecal Coliform	1600 MPN/100ml	200 FC/100ml (avg)	ARF0000134	
43	10/15/1991	DSN002	Fecal Coliform	1600 MPN/100ml	400 FC/100ml (max)	ARF0000134	
44	10/15/1991	DSN002	pH	5.82 SU	6.0-9.0 SU	ARF0000134	
45	3Q91	DSN002	Aquatic Tox	91% Mortality @100%		ARF0000096	
46	11/15/1991	DSN002	Fecal Coliform	2400 MPN/100ml	200 FC/100ml (avg)	ARF0000135	
47	11/15/1991	DSN002	Fecal Coliform	2400 MPN/100ml	400 FC/100ml (max)	ARF0000135	
48	12/3/1991	DSN002	Fecal Coliform	3900 MPN/100ml	200 FC/100ml (avg)	ARF0000135	
49	12/3/1991	DSN002	Fecal Coliform	3900 MPN/100ml	400 FC/100ml (max)	ARF0000135	
50	12/3/1991	DSN002	TSS	214 mg/l	50 mg/l	ARF0000174	Violation assumed by permittee but not claimed by agency.
51	1/31/1992	DSN002	TSS	140 mg/l	50 mg/l	ARF0000135	
52	1/31/1992	DSN002	Fecal Coliform	3400 MPN/100ml	200 FC/100ml (avg)	ARF0000135	
53	1/31/1992	DSN002	Fecal Coliform	3400 MPN/100ml	400 FC/100ml (max)	ARF0000135	
54	1/31/1992	DSN002	Zinc	662 ug/l	600 ug/l	ARF0000142	
55	2/29/1992	DSN002	COD	204 mg/l	100 mg/l	ARF0000174	
56	2/29/1992	DSN002	TSS	82 mg/l	50 mg/l	ARF0000135	
57	2/29/1992	DSN002	Fecal Coliform	2400 MPN/100ml	200 FC/100ml (avg)	ARF0000135	
58	2/29/1992	DSN002	Fecal Coliform	2400 MPN/100ml	400 FC/100ml (max)	ARF0000135	
59	3/19/1992	DSN002	COD	272 mg/l	100 mg/l	ARF0000120	
60	3/19/1992	DSN002	pH	5.8 SU	6.0-9.0 SU	ARF0000120	
61	3/19/1992	DSN002	Fecal Coliform	540 MPN/100ml	200 FC/100ml (avg)	ARF0000120	
62	3/19/1992	DSN002	Fecal Coliform	540 MPN/100ml	400 FC/100ml (max)	ARF0000120	
63	3/23/1992	DSN002	COD	165 mg/l	100 mg/l	ARF0000120	
64	3/23/1992	DSN002	TSS	66 mg/l	50 mg/l	ARF0000120	Agency report stated value was 86 mg/l
65	3/23/1992	DSN002	Lead	196 ug/l	150 ug/l	ARF0000120	
66	3/23/1992	DSN002	Zinc	964 ug/l	600 ug/l	ARF0000120	
67	4/16/1992	DSN002	COD	109 mg/l	100 mg/l	ARF0000122	
68	4/16/1992	DSN002	Zinc	1090 ug/l	600 ug/l	ARF0000122	
69	5/8/1992	DSN002	COD	163 mg/l	100 mg/l	ARF0000147	
70	5/8/1992	DSN002	Fecal Coliform	21,000 MPN/100ml	200 FC/100ml (avg)	ARF0000147	
71	5/8/1992	DSN002	Fecal Coliform	21,000 MPN/100ml	400 FC/100ml (max)	ARF0000147	
72	6/19/1992	DSN002	COD	176 mg/l	100 mg/l	ARF0000152	
73	6/19/1992	DSN002	TSS	55 mg/l	50 mg/l	ARF0000152	
74	6/19/1992	DSN002	Zinc	669 ug/l	600 ug/l	ARF0000152	

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Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document	Notes
75	6/19/1992	DSN002	Fecal Coliform	900 MPN/100ml	200 FC/100ml (avg)	ARF0000152	
76	6/19/1992	DSN002	Fecal Coliform	900 MPN/100ml	400 FC/100ml (max)	ARF0000152	
77	7/23/1992	DSN002	Zinc	759 ug/l	600 ug/l	ARF0000161	
78	9/10/1992	DSN002	TSS	289 mg/l	50 mg/l	ARF0000176	
79	9/10/1992	DSN002	Fecal Coliform	3200 MPN/100ml	200 FC/100ml (avg)	ARF0000176	
80	9/10/1992	DSN002	Fecal Coliform	3200 MPN/100ml	400 FC/100ml (max)	ARF0000176	
81	10/9/1992	DSN002	COD	130 mg/l	100 mg/l	ARF0000196	
82	10/9/1992	DSN002	Zinc	1090 ug/l	600 ug/l	ARF0000196	
83	10/9/1992	DSN002	Fecal Coliform	4200 MPN/100ml	200 FC/100ml (avg)	ARF0000196	
84	10/9/1992	DSN002	Fecal Coliform	4200 MPN/100ml	400 FC/100ml (max)	ARF0000196	
85	11/3/1992	DSN002	Fecal Coliform	4600 MPN/100ml	200 FC/100ml (avg)	ARF0000215	
86	11/3/1992	DSN002	Fecal Coliform	4600 MPN/100ml	400 FC/100ml (max)	ARF0000215	**INTERIM ACO LIMITS ESTABLISHED 12/1/1992**
87	12/17/1992	DSN002	Cyanide	0.12 mg/l	0.10 mg/l	ARF0000220	This result was shown to be a laborabory anomaly based on re-testing
88	12/17/1992	DSN002	Fecal Coliform	2312 MPN/100ml	1200 MPN/100ml	ARF0000259	Units incorrectly stated on source document
	1/31/1993	DSN002	Zinc	914 ug/l	1100 ug/l	ARF0000259	Not a violation of interim ACO limit
89	2/8/1993	DSN002	COD	232 mg/l	175 mg/l	ARF0000239	
90	2/8/1993	DSN002	TSS	131 mg/l	75 mg/l	ARF0000239	
91	2/8/1993	DSN002	Fecal Coliform	10222 MPN/100ml	1200 MPN/100ml	ARF0000239	
92	3/15/1993	DSN002	Fecal Coliform	3479 MPN/100ml	1200 MPN/100ml	ARF0000246	
93	4/1/1993	DSN002	Fecal Coliform	113000 MPN/100ml	1200 MPN/100ml	ARF0000253	
94	4/1/1993	DSN002	Toluene	320 ug/l	225 ug/l	ARF0000253	Atypical and suspect result
95	4/1/1993	DSN002	Methylene Chloride	160 ug/l	50 ug/l	ARF0000253	Atypical and suspect result
	4/1/1993	DSN002	Zinc	875 ug/l	1100 ug/l	ARF0000274	Not a violation of interim ACO limit
96	6/9/1993	DSN002	Zinc	1390 ug/l	1100 ug/l	ARF0000277	
97	6/9/1993	DSN002	Fecal Coliform	9000 MPN/100ml	1200 MPN/100ml	ARF0000277	
98	6/9/1993	DSN002	Aquatic Toxicity	13.30%	50% minimum	ARF0000277	
99	8/6/1993	DSN002	Zinc	1150 ug/l	1100 ug/l	ARF0000291	
100	8/6/1993	DSN002	Fecal Coliform	26000 CFU/100ml	1200 MPN/100ml	ARF0000291	

Exceedance Summary

103	Fecal Coliform
46	TSS (Total Suspended Solids)
38	COD (Chemical Oxygen Demand)
18	TPH or PHC (Total Petroleum Hydrocarbons and Petroleum Hydrocarbons)
12	Zinc
11	pH
6	Lead
5	Aquatic Toxicity
3	Flow
2	Methylene Chloride
1	Toluene
1	Cyanide
246	Total Exceedances

Definitions and Units

ug/l	micrograms per liter
mg/l	miligrams per liter
COD	chemical oxygen demand
TSS	total suspended solids
FC/100ml	fecal coliform per 100 milliliters
MPN/100ml	most probable number per 100 milliliters
ARF0000291	Bates number of reference document
DMR	Discharge Monitoring Report
ACO	Administrative Consent Order

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Table 3

All Stormwater NJPDES Exceedances for Lead Noted in Nexus Documents

DSN001 Exceedances

Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document
1	1/9/1991	DNS001	Lead	230 ug/l	150 ug/l	ARF0000053, DMR Report
2	4/15/1991	DNS001	Lead	260 ug/l	150 ug/l	DMR Report
3	8/6/1993	DNS001	Lead	169 ug/l	150 ug/l	ARF0000053, DMR Report

DSN002 Exceedances

Exceedance	Date	Outfall	Parameter	Result	Allowed	Source Document
1	1/9/1991	DNS002	Lead	200 ug/l	150 ug/l	ARF0000053, DMR Report
2	4/15/1991	DNS002	Lead	295 ug/l	150 ug/l	DMR Report
3	3/23/1992	DNS002	Lead	196 ug/l	150 ug/l	ARF0000053, DMR Report

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